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2/14/06
SC

City of Seattle

Gregory J. Nickels, Mayor

Seattle City Light
Jorge Carrasco, Superintendent

February 14, 2006

Shawn Blocker and Howard Orlean
US EPA Region 10
1200 Sixth Ave (AWT-121)
Seattle, WA 98101-1128

RE: Boeing Phase II Transformer PCB Investigation Report; Seattle City Light Comments

Dear Mr. Blocker and Mr. Orlean:

Seattle City Light (SCL) has reviewed the Draft Phase II Transformer PCB Investigation Report for Boeing Plant II dated August 3, 2005. The following summarizes our concerns with the report. Detailed comments are enclosed.

Our review finds that the report is well prepared but its interpretation of data may misrepresent the nature and extent of PCBs in the investigation area. The Phase II Investigation also leaves several important data gaps.

Our primary concern is the report's assertion that the Area of Discovery is the single source of PCB contamination in the investigation area (Section 4.3.1). The data and illustrations presented confirm the existence of multiple PCB releases along the property line alignment, indicating that the Area of Discovery is not the only source of PCBs discovered in soils and groundwater in the vicinity of the former substation.

Data presented in the report show that manhole 36-83 and oil water separator 36-83A (referred to as a vault) released PCBs directly to underlying soils (Figures 3.1 and 3.3). It is critical to note that these features were the final receiving reservoirs for runoff from the historical trench and concrete trough system, which collected and conveyed surface fluids from at least 350 feet of the southern property boundary (Section 1.3.1). As reported, soil samples collected along this trough had PCBs ranging from 22,000 ppb approximately 35 feet east, to 58 ppb as far as 100 feet east of the pad. This is evidence of multiple releases along the trough, making it very plausible, or likely, that PCBs in the Area of Discovery, manhole 36-83, and oil/water separator 36-83A were transported there via the trough from sources east of the substation where oil handling activities are known to have occurred. The nature and extent of PCBs along the trough alignment has not yet been fully investigated.

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Interpretation of the Phase I and II data, including evidence of PCBs from storm drains on the Jorgensen Forge property, place into question whether SCL transformers were the source of elevated, if any, PCBs to soils. The lack of full characterization of the trough alignment referred to above, and the absence of any sample data from below the substation pad or from its western, eastern or northern perimeters, leave significant questions unanswered.

Additionally, SCL has deep concerns over the lack of a thorough investigation of the Plant II storm system that drained to manhole 36-83. There is documentation showing the use or release of PCBs in locations across the southern portion of Plant II, including oil storage and waste oil handling areas, machine pits, machine shops and Boeing transformer vaults (see: Comprehensive RCRA Facility Investigation [August, 1998]; Boeing South Yard Area Data Gap Investigation [August, 2005]; Plant II Storm Water Solids and Catch Basin Sampling [August, 2005]; Concrete Joint Sealant Sampling [October, 2005]). Boeing piping diagrams show that approximately 1,000 feet of storm system piping from this area flows to the 12" line below the substation pad and into manhole 36-83. These diagrams also show that over 1,500 feet of the 12-inch pipeline running along building 2-80 flowed into manhole 36-83. Phase II data show that manhole 36-83 likely released PCBs directly to underlying soils in the area of investigation, and the report also concludes that the storm system conveyed PCBs, via manhole 36-83, to outfalls 9 and 9A (Section 5.0). Seattle City Light questions why this entire pathway has not been fully characterized.

Stated objectives for the investigation are to determine nature and extent of PCB contamination and prevent contamination in soil from spreading and leaching to ground water. At present, the Phase I and II Investigations have focused on only one suspected release at the "Area of Discovery." Before alternatives for remediation of the uplands contamination are developed, the full nature and extent of PCBs in the vicinity of the former substation should be determined. For this determination to be complete, the entire historical trough alignment and solids from the storm system that drained to manhole 36-83 should be fully investigated.

SCL and Boeing records indicate that all historical and recent samples from the substation (fluid, heel, wipe, pad debris and concrete) had insignificant levels of PCBs (ranging from non-detect to a single high of 6 mg/kg) relative to concentrations in Area of Discovery soils. With demonstrable evidence of multiple PCB release locations and pathways to the investigation area, and a lack of evidence showing the transformers being the source of elevated PCBs, exclusive use of the word "Transformer" in investigation nomenclature is

inappropriate. We request that from here forward the word "Transformer" be removed from all nomenclature and correspondence associated with future investigations.

We would like to meet with you at your earliest convenience to discuss SCL comments and concerns related to this investigation. Please let me know possible times and I will be glad to handle logistics if that would be helpful. I may be reached at (206) 386-4585 or laurie.geissinger@seattle.gov. Also, please include me on the distribution list for all correspondence and reports related to this and related investigations. I have routinely received Phase I materials but do not have a complete file on Phase II. Thank you.

Sincerely,

Laurie Geissinger

Laurie Geissinger
Acting Manager, Science Policy Unit
Environmental Affairs

TM/LG:kts

Enclosure

cc: Will Ernst, Boeing Energy and Environmental Services
Lynn Best, Seattle City Light
Martin Baker, City of Seattle Public Utilities

Comments on Phase II Transformer PCB Investigation Report

Seattle City Light
February, 2006

Phase II Transformer PCB Investigation Report
Prepared for The Boeing Company
Floyd|Snider and Weston Solutions
August 3, 2005

1. Section 1.1. Page 1-1, 1st bullet. The text "from the transformers" should be deleted so that this sentence ends in "...release." Potential sources of PCBs in the Area of Discovery and Broader Investigation Area are not listed and therefore presumably not investigated as part of this study.

2. Section 1.1. Pg 1-1, 2nd paragraph. Unclear: "side wall sample along the *western* property line". This should read *southern* property line.

3. Section 1.1. Pg 1-2, 1st paragraph. Report indicates that Phase II discusses entire data set available for the "broader investigation area". Please define Broader Investigation Area and include this and all referenced areas and samples on an appropriate figure.

4. Section 1.2. Pg 1-2, 3rd paragraph. Report states for the southern portion of the Facility since the 1980s, "The following sections describe the most significant prior investigations that were conducted in the vicinity of the substation" What is meant by significant? What other investigations were conducted that quantified PCBs prior to or after this time? Please include references to any investigations within the drainage area of MH 36-83, including any investigations at or near former building 2-82.

5. Section 1.2.1. Pg 1-2, 4th paragraph. The last sentence, "The highest PCB concentrations were detected...in borings within 50 feet of the Area of Discovery" is misleading, and should be revised to state that the highest concentrations were found in samples located adjacent to the concrete gutter/stormwater vault drainage system, both up- and downgradient of the Area of Discovery. A figure should be included that illustrates the historical sample locations and concentrations referred to in the text.

6. Section 1.2.1. Pg 1-2, 5th paragraph. This paragraph should refer to a diagram showing the location of all wells, including well PL2-006A, in relation to the substation and the stormwater vault (such as Figure 2.1).

7. Section 1.2.2. Pg 1-3, 2nd paragraph. The text states "PCBs were not detected in the nine of samples analyzed." This sentence is unclear - please clarify which samples were analyzed for PCBs and in which samples PCBs were detected.

8. Section 1.2.4. Pg 1-3, 5th paragraph. The first sentence in this paragraph is not clear. Please explain what is meant by "the sediment downstream of the Transformer Investigation Area" Also, please explain what is meant by "could conceivably be a source of or affected by the PCB release".

9. Section 1.2.5. Pg 1-4, 3rd paragraph. Have there been prior cleanups of PCBs?

10. Please add new Section 1.2 called Site History. This section should detail the development timeline of the site, describing the chronology of construction, facility installation, site paving/surfacing and storm drain installation in the southern portion of Plant 2. This section should encompass, at a minimum, all historical and current site features within the area that historically and currently affect the Area of Discovery in terms of flows, runoff, etc., and should fully explain the reasons for the August 2001 excavation activities that lead to the discovery of PCB-impacted soil. This section should also provide a detailed description of the site and substation physical properties and layout. It should also include features on the Jorgensen property where possible. This new section should be inserted prior to discussion of release mechanisms and pathways. All features should be shown on appropriate figures or photographs.

    Specific items that should also be addressed in this section include:

    - Section 1.2.3, Page 1-3. What is the origin of the construction debris along the bank?

    - Pg. 1-1. There is no information regarding the appearance of the Area of Discovery when Boeing started installation of secondary containment around the substation. This area is shown as a concrete gutter on Boeing Plant II drawings. Please fully explain the reasons for the secondary containment replacement, when the concrete gutter was removed, its condition, whether it was sampled, and if so the results of that sampling.

    - Pg. 1-6. All of the catchment and conveyance features along the south property line within the drainage area of MH 36-83 are sources of flow to that manhole and have notable relevance to the investigation of flows to OF-9 and OF-9A. Please explain the history and details of construction and removal of all stormwater/runoff collection and fluid conveyance features (ditch, trough, vault, curb, surfacing, etc.) along the south property line and in the vicinity of the substation, and show the complete locations of these features on an appropriate figure. Details of these features should be described, including their connections, construction materials (joint sealant, caulking, etc.), and any characterization or sampling conducted. Please include the reason for installation of each feature (e.g., why the secondary containment was installed in August 2001).

      References made in the report are confusing. For example, it is uncertain whether the stormwater collection trough is also referred to as a concrete ditch on Boeing Plant II drawings, or the concrete trough of Figure 2-1. Is the concrete trough a portion or remnant of the historical concrete curb? Also, is the stormwater vault the same

structure as the oil-water separator (OWS) 36-83A and Retention Basin #6 shown on Plant II drawings?

11. Section 1.3.1. Page 1-5, 1-6. Please indicate where the discussion of PCB transport via commingling with hydrocarbons is located later in the report.

12. Section 1.3.1, Page 1-5, 7th paragraph. Please update the conceptual site model to address how "Such spills or leaks contacted surface soils in the Area of Discovery" if, as reported, the surface soils had been paved in 1942.

13. Section 1.3.1, Page 1-6, 4th paragraph. Please describe, and show on a map, the entire upland area that drained to Outfall 9/9A. Please explain how the re-routing of flow from MH 36-83 was accomplished. All pipelines leading to MH 36-83, besides the one exiting to outfall 9, appear to flow to, i.e. slope downward to MH 36-83.

14. Section 1.3.1. Page 1-6, 5th paragraph; others. Boeing drawings indicate that Outfalls 9 and 9A have received flow from a variety of sources, only one of which is the storm system via Boeing SDMH 36-83. Therefore, elevated PCB concentrations found in the sediment in front of Outfalls 9/9A are from multiple sources on Plant 2 or on Jorgenson Forge. The conceptual site model, insofar as it includes potential sources of PCBs found in OF 9/9A sediments, must reference all of these known pathways.

15. Section 1.3.1. Page 1-6, 6th paragraph. Please explain how current paving eliminates the potential for stormwater transport of PCBs to the waterway (including how current paving compares or contrasts with initial surfacing of the site in 1942).
16. Section 1.3.4. Page 1-8, 4th bullet. See Comment # 14.

17. Section 2.5.1. Page 2-4, 2nd paragraph. The text states that "samples were also collected from 5 manholes upgradient (east) of the transformer investigation area". Please identify these manholes and show their location on an appropriate figure. Please explain the results of these samples. If these manholes are located within any of the conveyance systems leading to MH 36-83, they are within the Phase II Work Plan objectives.

18. Section 2.1. Pg 2-2, 1st paragraph. Figure 2.1 does not show all pipes that lead to the 12-inch and 24-inch property line storm pipes. (Reference Section 2.5.2, which indicates former or current Boeing Plant pipes leading into the property line pipes.).

19. Section 2.5.2. Pg 2-4, 3rd paragraph. Alternatively, the potential also existed that PCBs from other sources could have been conveyed to the Transformer Investigation Area by flowing along the outside of storm system pipes, exiting the pipes through cracks and joints, or via blocked, malfunctioning and overflowing retention basins.

20. Section 2.5.2. Pg 2-4, last paragraph. Boeing Drawing #C397 dated 7-25-95 (Job # 740162) also shows a 6" pipe located under the substation. Please explain the existence and whereabouts of this pipe.

21. Section 3.1. The Phase II investigation indicates that manhole 36-83 received runoff from the trough and upstream surface curbing that runs/ran eastward along the property line. Were surface and/or near surface soil samples collected along and below this feature to investigate this migration pathway? All sampling from along or below, or otherwise relating to the former trough, including samples collected for disposal purposes only, should be included.

22. Section 3.1. Figure 3.1. Data shown in the 4-6 foot bgs frame indicate concentrations become greater going eastward from the Area of Discovery. Please explain this trend in Section 3.1, and include in the discussion and conclusion sections of the report.

23. Section 3.1, Figure 3.3. Contours are inaccurate, documenting contamination in areas where no data exist.

    A. For example, in the 0-2 ft bgs image, the yellow (1,000 – 5,000 ppb) contour extends to the sheetpile to the west. Similarly the green (500-1,000 ppb) contour extends to the sheetpile to the west in the 4-6 ft bgs image. Sampling results (Figure 3.1) provide no evidence for this. Concentration contouring should depict analyte concentrations only within the area where concentration data are known. This holds true regardless of the contouring methodology used. Please correct the contouring and remove all extrapolations/predictions made outside the data presented in this report.

    B. The data presented (Figure 3.1) show that shallow PCB concentrations in the substation area are notably inconsistent across the Area of Investigation. However, contours shown on Figure 3.3 suggest a continuum of PCB concentration across an approximately 100-foot area. For example, PCB concentrations in the 2-4 ft bgs depth zone vary notably within a 25-foot radius of the highest concentration locus (300,000 ppb), yet Figure 3.3 suggests a consistent concentration plume of up to 100,000 ppb over an area nearly 100 feet long. This extrapolated plume also extends northward under the substation pad, where no reported data exist, to a point close in proximity to locations of known non-detection of PCB's near the northeast corner of the substation pad. Please correct Figure 3.3 and make associated changes in the discussion and conclusion sections.

    C. Data from previous investigations (including pre-Phase I and II sampling in the investigation area) that are used in assessing the extent of contamination for this study should be provided in tables, and all locations should be clearly indicated in figures.

24. Section 3.1. The data (Figures 3.1 and 3.3) indicate that at least 2 release locations are likely in the Investigation Area. For example, in the near surface, 0-2 foot bgs frame, two concentration centers are evident: one near the Area of Discovery, and one southwest of the substation pad. Similarly, in the 2-4 foot bgs frame the data indicate that PCBs extend at least 70 feet, east to west, along the south property line, suggesting multiple release points. Data at the 4-6 foot bgs level are highest at a location 30 or more feet west of the Area of Discovery. At the 8-foot bgs level and below, PCBs are centered below the concentration center southwest of the substation. The western concentration center coincides with the location of the stormwater vault, whose bottom is approximately 3.5 feet bgs (elevation 9.9 ft), and the southwestern concentration center coincides with SDMH No. 36-83, indicating

that these features and their historical predecessors cannot be ruled out as potential sources of the PCBs in these locations.

Please revise Section 3.1, the Discussion and Conclusion Sections accordingly.

25. Section 3.2.2. Page 3-2. Please incorporate ground water elevation data for the area within and surrounding the sheet pile into the Figures and discussion. Please describe any affects that the Interim Action activities have on ground water conditions outside the sheetpile area.

26. Section 3.3. Page 3-4, 2nd bullet. The sentence "...the source for these PCBs is not unrelated to the release at the Area of Discovery" is unclear due to the double-negative. Please clarify.

27. Section 3.3. Pg 3-3, 2nd bullet. The statement "no cross-connection between these systems and/or the substation system was found" needs to be clarified to acknowledge that there are or were cross-connections from the Boeing storm system and both the 12" and 24" property line storm pipes (see Section 2.5.2).

28. Section 3.3. Pg 3-4. There is no conclusion given with respect to the 12-inch pipe running below the substation pad, which leads to MH 36-83. Boeing drawings indicate that this pipe discharges from MH 36-85, which appears to have historically received drainage from other areas of Plant 2. The Phase II pipeline survey shows that this pipe is intact and not plugged. This pipe and its potential releases to MH 36-83 should be examined and addressed in this section. As indicated in other comments, this pipe and all others that have historically flowed to MH 36-83 should be shown on an appropriate figure.

29. Section 3.3. Pg 3-4. Not all results are shown on Figure 3.7 (ref. Section 2.5.1). Please show all storm survey and solids sampling results on Figure 3.7, including those that exist farther east than the area presently shown on Figure 3.7.

30. EPA has requested that Boeing provide an evaluation of potential historic and present day flows of particulate bound or non-aqueous phase liquid (NAPL) PCBs to the river from the storm sewer system. Please report the results of the evaluation of the entire system leading to MH 36-83, including historical runoff flows from the surfaced area within the drainage area of MH 36-83, the 12-inch pipeline running under the substation pad, and the 12-inch pipeline that historically flowed west along building 2-80.

31. Section 3.4. Page 3-5, 1st paragraph. This section states that "rare extreme high tides could conceivably result in groundwater elevations that, for a limited period of time, rise above the elevations of the manhole and pipe inverts, particularly for the 24-inch storm pipe." These interpretations appear to be made using water table levels measured during the period Mar 14-18, 2005. While the extrapolations made from these data are useful in determining the relative effect certain tide levels have on the water table at the Area of Discovery, they are not representative of the overall average conditions and frequency of immersion of the manhole and pipe inverts.

32. During the measurement period the highest daily tide reached was 11.67 ft MLLW. NOAA data indicate that along the Seattle waterfront, high tide exceeds 12 ft MLLW during nearly

each month of the year, and commonly reaches 13 ft MLLW. Ground water elevations at the Area of Discovery should be extrapolated based on high tides averaged on a yearly basis, not the 4-day measurement period. Please revise the text, associated Figure(s), and conclusions accordingly.

33. Section 4.0. This section needs to include a much more detailed discussion of potential release and transport mechanisms, reviewing all pertinent historical and current features that have existed on Plant 2. As indicated in comment #10, these features should first be presented in a complete Site History section. The discussion, particularly Section 4.1 should include a review of each possible release and transport mechanism within the entire drainage area of MH 36-83, surrounding the substation (e.g., going east at least as far as the historical "high" point of the trough located approximately 350 feet east of the substation).

34. Section 4.1. Page 4-1, 1st paragraph. See comment #10. Please show all areas that were paved. Please define the area of investigation and show on an appropriate Figure.

35. Section 4.1. Page 4-1, 1st paragraph. If the area around the substation has been paved since 1942, prior to installation of the substation, please explain mechanisms of release and transport to soils and ground water. Please assess the entire transformer investigation area in this explanation.

36. Section 4.1. Pg 4-1, 2nd paragraph. Split sample results by Off-site Environmental vary with these results as follows: debris sample was reported as 1.04 ppm total; one of the 5 concrete samples was reported above the detection limit, at less than 0.74 ppm. Please report these data.

37. Section 4.1. Pg 4-1, 2nd paragraph. Excavation of the Area of Discovery was close in proximity to the substation pad, and took place in unsaturated soils. The concrete debris and wipe sample results from around and on these transformers may be attributable to dust generated by this excavation adhering to these surfaces. Please incorporate this into the discussion.

38. Section 4.1. Pg 4-1, 3rd paragraph. The text states that "SCL maintenance records for the late 1960s and early 70s indicate oil seepage and leaks from the transformers" Note that these maintenance records are for the Westinghouse transformers. SCL records show that tests conducted on multiple occasions indicate PCBs did not exist in the oil contained in these transformers. Please revise the text to state "SCL maintenance records for the late 1960s and early 70s indicate oil seepage and leaks from the transformers, however oil from these transformers has been sampled on several occasions and no PCBs were detected."

39. Section 4.2. Page 4-2, 1st paragraph. Lateral migration of PCBs to locations above the water table up to 50 horizontal feet away (as described in the text) would require migration along a slope of 1:5 (10'vert./50' horiz.) or shallower. Please describe possible mechanisms or features at the site that could account for this.

40. Section 4.2. Page 4-2. (See also Comment #24) The report interprets that the PCBs below the western concentration center likely originated at the surface at the Area of Discovery,

percolated downward to the water table and migrated downgradient to their current location. However, given the high partitioning of PCBs to soils and their resulting recalcitrance in soils, it is unlikely that such a migration would have resulted in the very low levels of PCBs (less than 0.6 ppm) below the point of release shown in the data. Rather, the likelihood is that PCBs in soil west of the Area of Discovery at the 8-foot bgs level and below (Figures 3.1 and 3.3) came from the stormwater vault, as well as the historical containment vaults/devices at this location that collected surface runoff from catchment features (curbing, trough, etc.) along the south property line. The volumes of fluids that flowed into these containment features from surface runoff would have contributed to more extensive percolation from that location than from potential surface leakage of oil from the transformer pad. This equally plausible, or likely scenario is consistent with the interpretation that near-surface PCBs in the Area of Discovery, or the eastern concentration center, are limited in their vertical extent with only very low concentrations reaching the water table.

Further, MH 36-83, which has a measured bottom depth of approximately 9 ft bgs (elev. 4.6), cannot be ruled out as a direct source of the PCBs at the 10-12 ft bgs level and below. The known high PCB concentrations (up to 590 ppm) and fluid volumes that flowed into this manhole make leakage from the manhole a likely source of PCBs in soils in this vicinity. Indeed, the data show that the manhole is located within the highest PCB concentration area at the 10 –12 and 12–14 ft bgs levels (Figure 3.1 and 3.3).

Please revise Section 4.2, the Discussion and Conclusion Sections accordingly.

41. Section 4.3.1. Page 4-2, 5th paragraph. The text states that "the PCB pattern is consistent with a release only at the Area of Discovery". See Comments 24 and 40.

42. Section 4.3. Page 4-2. The significance of the miscibility of PCBs with hydrocarbons is important in the interpretation of PCB transport via all pathways. The report makes it clear that the TPH distribution in soils indicates "multiple releases at various locations. With widespread TPH releases likely at Plant and Jorgensen, it is important to note that co-mingling of PCBs with these hydrocarbons may have contributed to the conveyance of PCBs, at the surface or within the stormwater system, away from their original release locations. This is important in the interpretation of the multiple PCB releases along the south property line in the vicinity of the Area of Discovery and the entire stormwater system flowing to MH 36-83. Please revise the text in the appropriate sections to include this information.

43. Section 4.4.1. Page 4-3, 5th paragraph. Per previous comments, revise text pertaining to PCBs as having only one potential source.

44. Section 4.5. Page 4-4, 4th paragraph. Please describe which locations/pipes have solids PCB concentrations <5,000 ppb. Please explain this criterion and list which potential sources in the storm system draining to MH 36-83 are being ruled out using this criterion.

45. Section 4.5. Page 4-4, 4th paragraph. Does "may be related to" mean "may be the source of"?

46. Section 4.5. Page 4-4, last paragraph. This paragraph is misleading because it omits discussion of other known sources of PCBs to sediments in the immediate vicinity of outfall

9/9A, including contaminated bank soils (see Section 1.2.3) and discharge from the 24 inch property line storm pipe which contained PCBs at a concentration that was more than 10 times the maximum concentration in the Area of Discovery. If it is likely that PCBs associated with releases in the Area of Discovery made it to the waterway via MH 36-83 and the storm system, please describe all possible mechanisms and locations of release and transport to MH 36-83, including surface features (concrete curb, concrete trough), the 12-inch pipeline running under the substation pad, and the 12-inch pipeline historically running west along building 2-80.

47. Section 4.6.4. Page 4-5, 5th paragraph. See Comment # 14. Boeing drawings indicate that Outfalls 9 and 9A have received flow from various sources, only one of which is the storm system via Boeing SDMH 36-83. Therefore, elevated PCB concentrations found in the sediment in front of Outfalls 9/9A are from multiple sources on Plant 2. All known potential sources should be included in this discussion. Also, if other pipelines leading to OF 9A are active, those should be identified.

48. Section 4.6.4. Pg 4-5. According to Boeing records, several former buildings located along the south property line are known to have stored oil and some are known to have had PCBs present (Weston 2000). According to Boeing records, these facilities are known to have been located immediately adjacent the surface runoff collection system that flowed westward to MH 36-83. This is especially important given that the data indicate the likelihood of multiple releases along the south property line (see Comment 24 and 40). Further, Boeing records show that certain features/buildings were connected to the 12-inch pipeline running westward below the substation pad and the 12-inch pipeline that historically flowed west along building 2-80 to MH 36-83. For Section 4.6 to be complete, these potential pathways for PCBs to enter the waterway via SDMH 36-83 must be included in this discussion.

49. Section 4.6.4. Page 4-5. The text states "PCB migration from the Area of Discovery did not reach the waterway via subsurface transport mechanisms…". The data show that near-surface PCBs exist outside the Area of Discovery and that multiple releases are likely. Does the investigation conclude that PCB migration from the *Transformer Investigation Area* did not reach the waterway via subsurface transport mechanisms? If so, please revise.

50. Section 4.6.4. Page 4-5, 6th paragraph. Based on Figure 4-2, releases from outfall 10 (apparently located within ~10 feet of outfall 9A) could also be associated with PCBs in waterway sediments.

51. Section 4.7. Page 4-6, 3rd bullet. Unclear. Are PCB-contaminated soils thought to have seeped into the pipe, or PCBs from the soils? Please clarify.

52. Section 4.7. Page 4-6. Also, please include and address potential seepage of PCBs from other sources conveyed to the Transformer Investigation Area by flowing along the outside of storm system pipes, exiting the pipes through cracks and joints, or via blocked, malfunctioning and overflowing retention basins.

53. Section 4.7. Page 4-6, 6th bullet. Please list all other potential pathways for PCBs to enter manhole 36-83 that have been identified, including the 12-inch pipeline running under the

substation pad and historical surface runoff from along the south property line, east of the substation.

54. Section 4.7. Page 4-6. Phase II data indicate that there were likely at least two areas of release in the Transformer Investigation Area (see Comment #24). This should be added to the revised Conceptual Site Model.

55. Section 5.0. Page 5-1, 1st bullet. Revise; see Comment #23.

56. Section 5.0. This section should be revised to present a complete set of conclusions that incorporate the comments above. Salient comments that should be addressed include Comments # 10, 14, 17, 21, 23, 24, 28, 30, 33, 36, 38, 39, 40, 42, 44, 46, 47, 48, 49 and 53.

57. Section 5.0. Phase II objectives, which include investigation of the storm system in the vicinity of the substation to determine the actual system layout, integrity and connectivity and determine the concentration of PCBs in catch basin and manhole solids, was not entirely met. Boeing records show that additional storm and conveyance pipes, beyond those presented in the report and shown on Figure 2.1 exist. Please revise report to include *all* conveyance pathways in and to the vicinity of the substation, which includes all pipes leading to MH 36-83.

    Boeing records show known PCB releases to soil at Plant 2 facilities located along the drainage system that may have lead to MH 36-83 that are not presented in the report (e.g., Bldg. 2-91 waste oil and coolant hold area - 211.9 ppm; Weston 2000; Boeing 1996). All known releases and PCB sampling results within the system leading to MH 36-83 should be referenced and described.

58. Section 5.0. The report should either report and describe all migration pathways to OF 9/9A, or should state that not all pathways are presented. Further, Boeing records show that there are known PCB releases to soil along other pipes leading to OF 9/9A besides the one from MH 36-83. The conclusions should include reference to these known PCB releases that may have contributed to the PCBs investigated at Outfall 9 and 9A.

References:

Boeing. 1996. Boeing Plant 2, WAD 00925 6819, RCRA Docket #1092-01-22-3008(h), Periodic Progress Report No. 27. The Boeing Company, Seattle, WA. (March 1996).

Weston. 2000. Technical Memorandum – SWMU/AOC/OA-Specific Data Presentation, RCRA Corrective Measures Study – Boeing Plant 2. Roy F. Weston, Inc., Seattle, WA. April 14.